

ORGANIZING COINS, TELEPHONE NUMBERS, AND PERSONS. Revised Feb 2, 2003.

Coins: Many possible arrangements: country, denomination (face value), diameter, shape (round, milled, rouleau curve, wavy), metal, weight, legal tender, year,... Some are unstable (where and when legal tender); difficult to know (composition); difficult to describe (wavy edge, images, physical condition); expensive and difficult to arrange more than one attribute at a time or rearrange. Doesn't scale well. For additional arrangements can use copies, physical surrogates, and, better, pointers [*index* entries] from an arrangement to original: "US 1996 quarter. *See* Coin in envelope no 2402."

The Telephone Numbers:

How would one organize half-a-million telephone numbers? Presumably in ascending numerical order so that one could find any one rapidly. Commonest is by alphabetically subscribers' names (if personal names, inverted) in telephone directory ("White pages"). This implies that each telephone number has an associated subscriber. Telephone companies create "reverse" directories arranged by telephone number and also arranged by attributes of the subscriber (e.g. street address and by service provided ("Yellow pages").

Match-making:	Attributes of candidate			Values of interest	
	Person #1	Person #2	Person #3	Seeker #1	Seeker #2
Eyes:	Blue	Blue	Brown	Any	Any
Height:	5' 10"	6' 4"	5' 9"	5' 4"-6'	5'4"-5'10"
Weight:	120 lbs	200 lbs	110 lbs	125-250 lbs	100-150
Gender:	Male	Male	Female	Male	Female
Financial status:	Wealthy	Poor	Medium	Flexible	Not rich
Finger prints:	Pattern 1	Pattern 2	Pattern 3	Just fingers	Yes
Personality:	Reliable	Charming	Lively	Yes	Bubbly
Employment	Workaholic	Part-time	Student	Employed	Pref student
Age	40	25	25	25-50	24-37
Religion: Denom.	Protestant	Jewish	Catholic	Flexible	Christian
Practicing?	No	Strict	Somewhat	Not	Yes
Sense of humor	Dry	Jokester	Unknown	[Too vague]	Dry

Comments:

- In practice, objects have multiple attributes, a potentially unlimited number.
- Description (expressing values) may be difficult to specify formally.
- Description of values can be quite subjective.
- Description of values may be unknown or uncertain or imprecise.
- Description is based on conventions (heat, date, height).
- Form of description more or less culturally based (choice of language or symbol).
- Important attributes often seem more difficult to describe.
- Choice of attributes to be described depends of the supposed purpose(s) of the collection, nature of interest, e.g. Social Security #; finger-prints, personality, shoe size, attitude.
- Searching in a collection is a matter of fitting a description.
- Searching in a collection can be seen as sorting, (re)arranging, ranking, ordering.
- Attributes and of values are not of equal importance, weight.
- Choice of values in description depends on searcher's interests and preferences.
- Two complementary tasks (Two kinds of "bibliography."):
 - i- Analysis and representation of objects: Choice of Attributes. Techniques for describing.
 - ii- Selecting: Finding which objects best fit the description.
- Sorting by the values of an attribute results in sub-collections (sub-sets).